



PJM2300NSA

N-Channel MOSFET

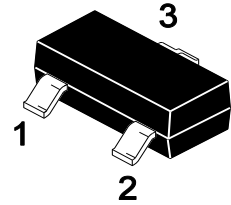
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

Applications

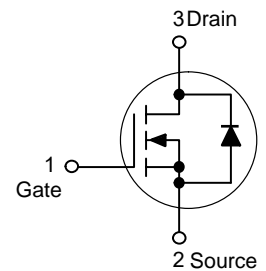
- Load Switch for Portable Devices
- DC/DC Converter

SOT-23



1. Gate 2. Source 3. Drain
Marking: M02

Schematic diagram



Absolute Maximum Ratings

Ratings at $T_A=25^\circ\text{C}$ unless otherwise specified.

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	4.5	A
Pulsed Drain Current ^{Note1}	I_{DM}	18	
Power Dissipation	P_D	0.35	W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55 to 150	$^\circ\text{C}$
Thermal Characteristics			
Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	357	$^\circ\text{C/W}$

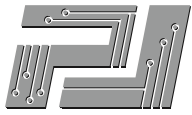


Electrical Characteristics (T_c = 25°C)

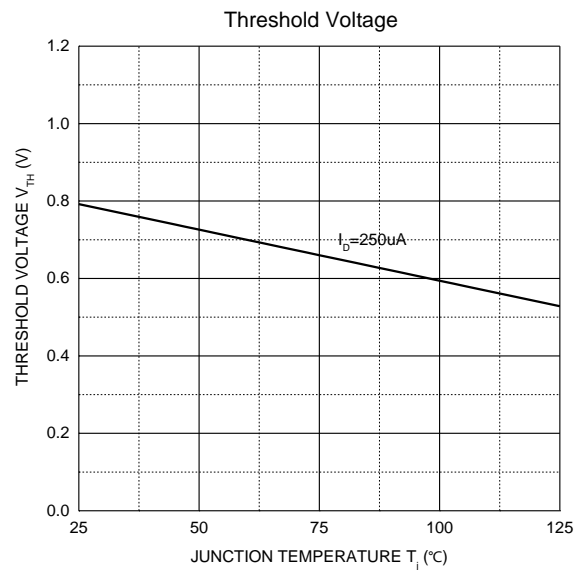
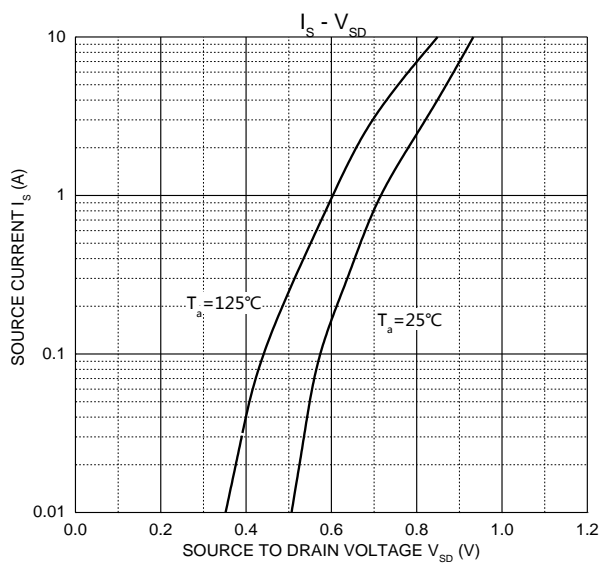
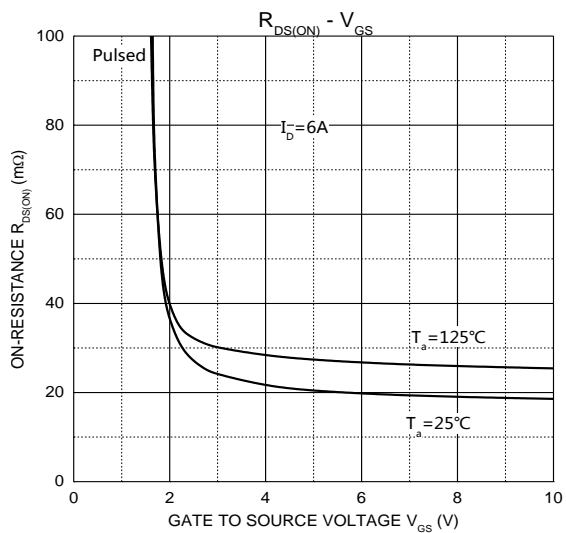
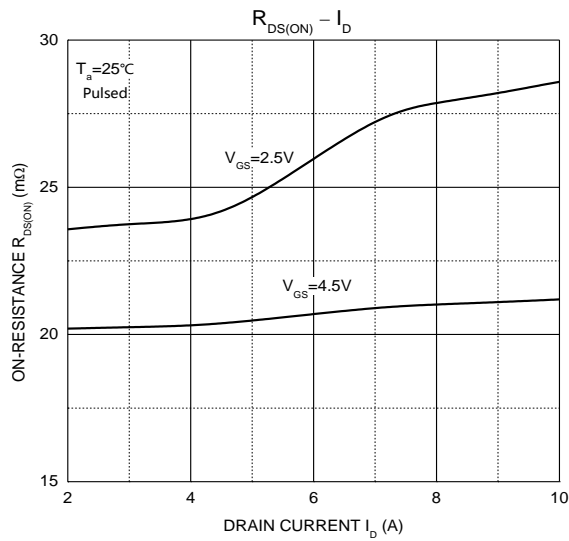
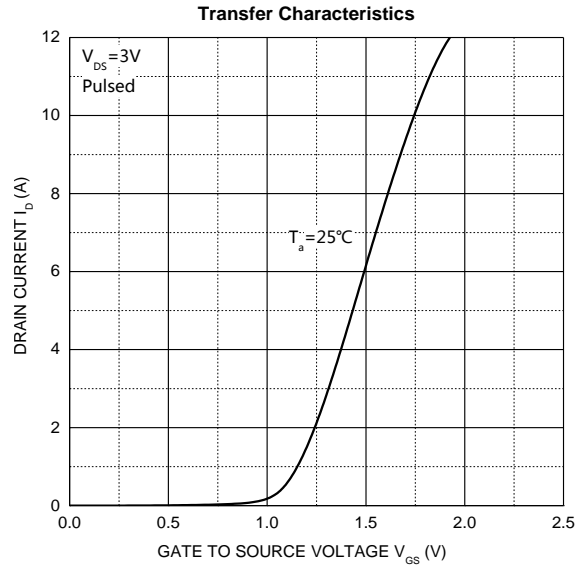
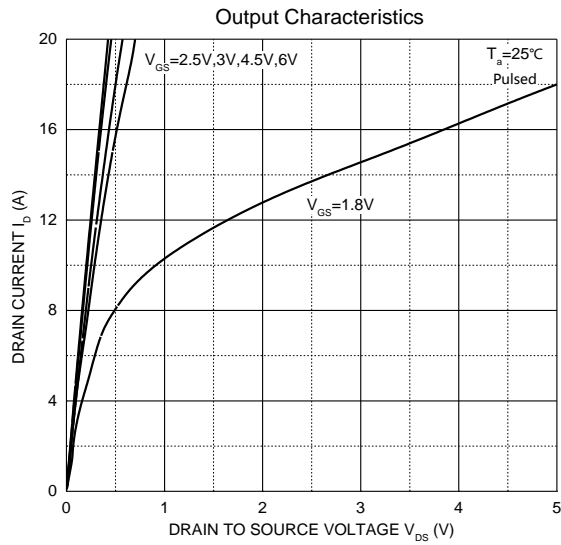
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	20	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	--	1	V
Static Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =4.5V, I _D =3A	--	--	32	mΩ
		V _{GS} =2.5V, I _D =2A	--	--	40	mΩ
		V _{GS} =1.8V, I _D =2A	--	--	70	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =10V, I _D =6A	--	5	--	S
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =8V, f=1MHz	--	523	--	pF
Output Capacitance	C _{oss}		--	99	--	pF
Reverse Transfer Capacitance	C _{rss}		--	75	--	pF
Switching Parameters						
Total gate charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =6A	--	6.4	8.2	nC
Gate Source Charge	Q _{gs}		--	1.8	2.3	nC
Gate Drain Charge	Q _{gd}		--	1.3	1.9	nC
Turn-On DelayTime	t _{D(on)}	V _{DS} =10V, V _{GS} =4.5V I _D =1A, R _{GEN} =6Ω	--	10.5	21	ns
Turn-On Rise Time	t _r		--	4.5	9	ns
Turn-Off DelayTime	t _{D(off)}		--	27.5	55	ns
Turn-Off Fall Time	t _f		--	4.3	8.6	ns
Drain-Source Diode Characteristics						
Body Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V	--	--	1.2	V

Note:

- 1.Repetitive rating : Pulse width limited by junction temperature.
- 2.Surface mounted on FR4 board, t≤10s.
- 3.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.



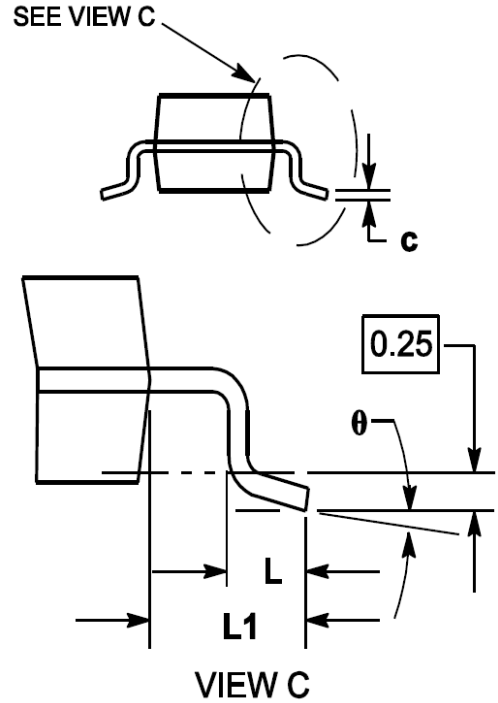
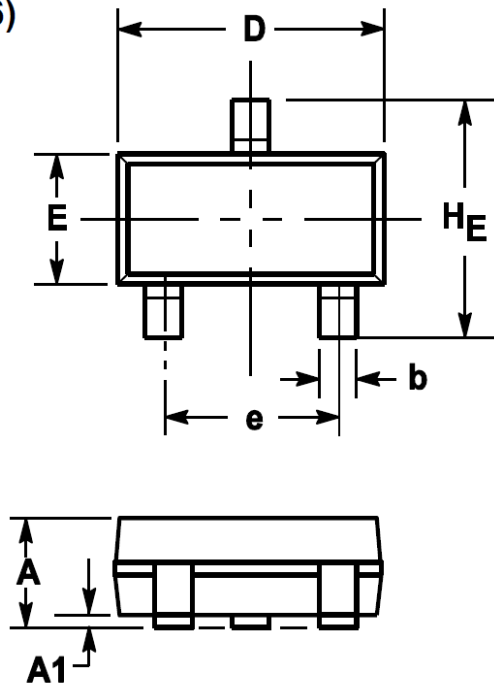
Typical Characteristics Curves



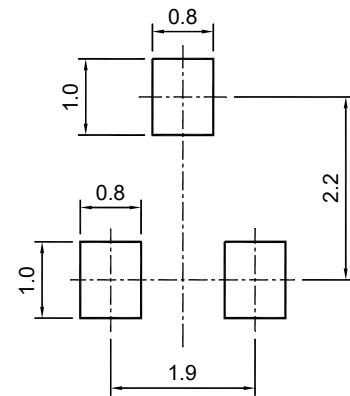


Package Outline

SOT-23 (TO-236)



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°



SOT-23 (TO-236)

Recommended soldering pad

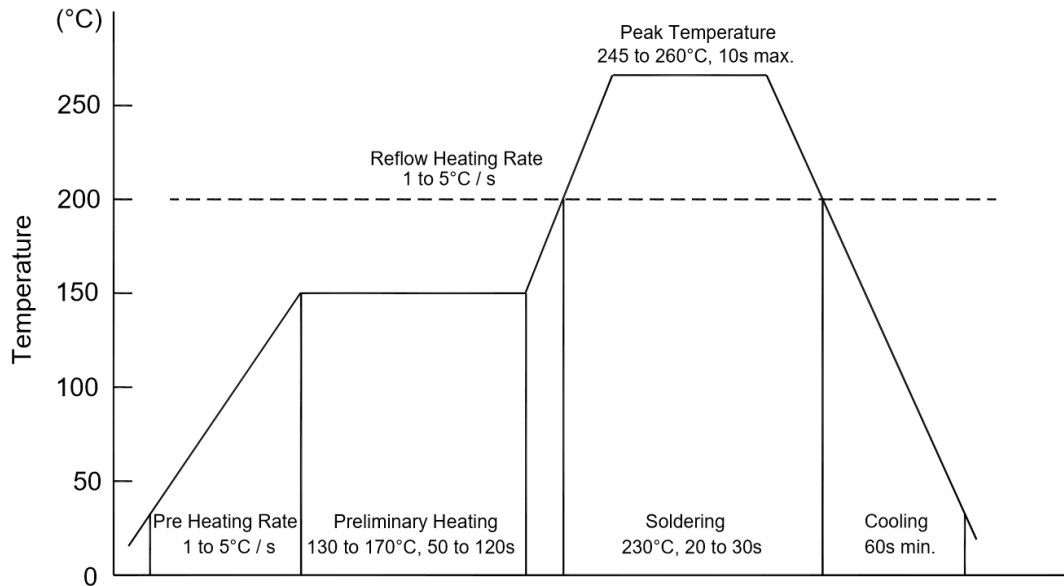
Ordering Information

Device	Package	Shipping
PJM2300NSA	SOT-23	3,000/Tape & Reel (7 inches)



Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

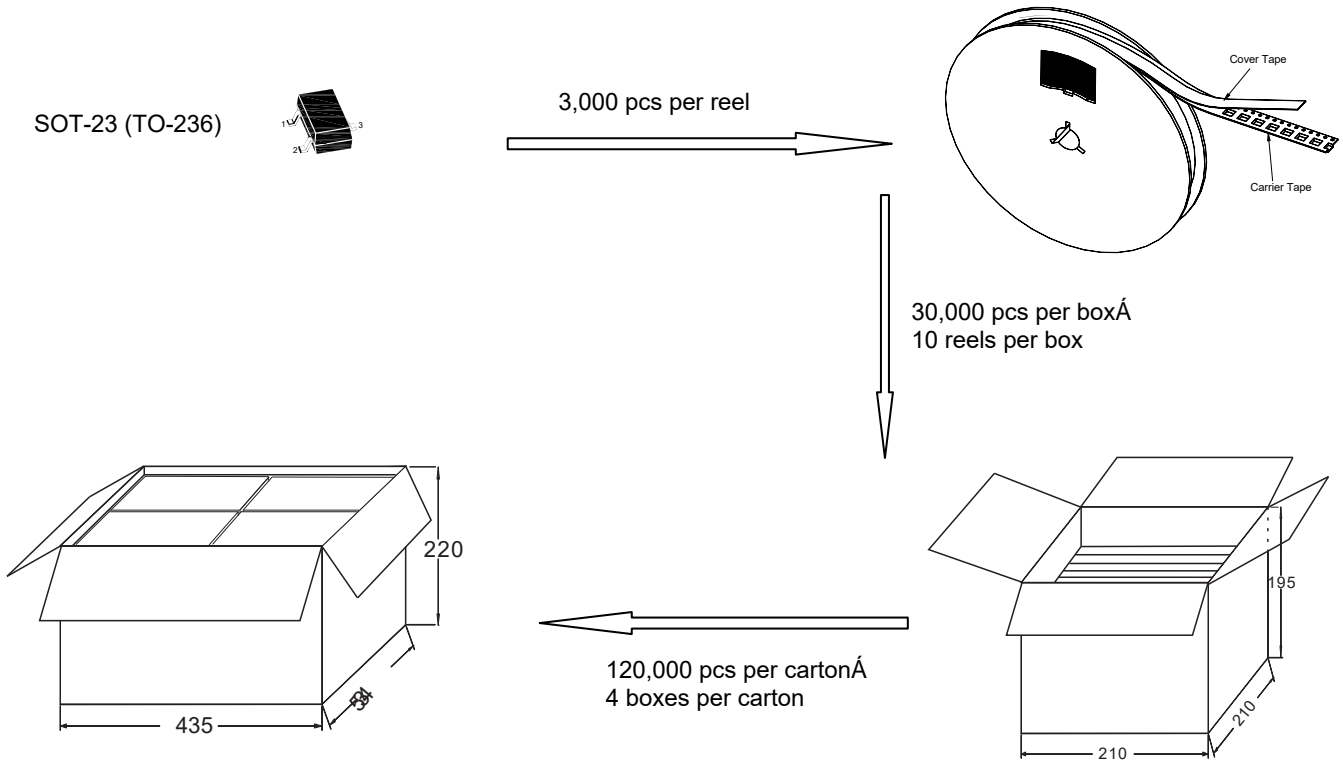
◆ Storage conditions

- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

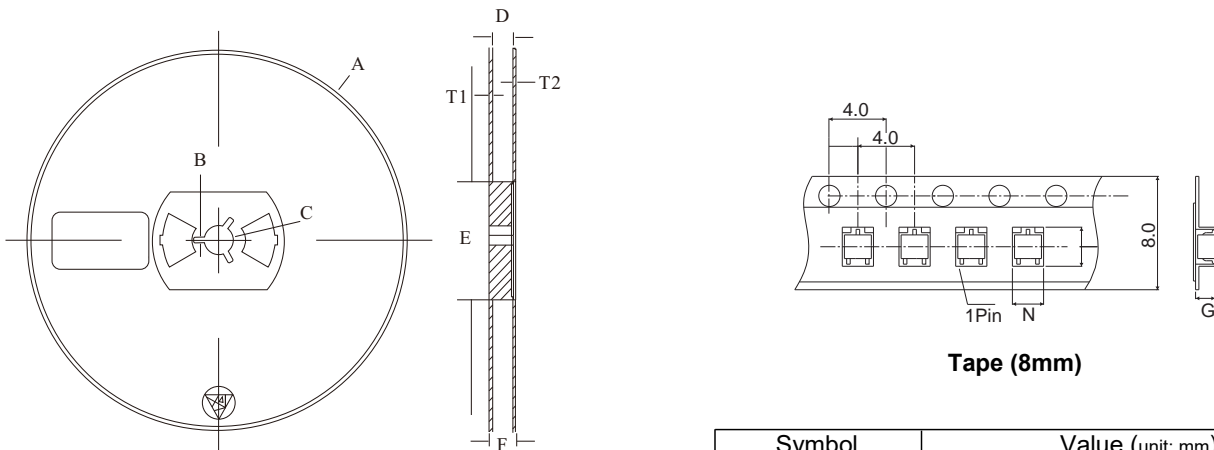


Package Specifications

◆ The method of packaging



◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	∅ 177.8±1
B	2.7±0.2
C	∅ 13.5±0.2
E	∅ 54.5±0.2
F	12.3±0.3
D	9.6+2/-0.3
T1	1.0±0.2
T2	1.2±0.2
N	3.15±0.1
G	1.25±0.1